CENTER 17	OHM EMERGENCY RESPONSE / SPILL PREVENTION PROGRAM / ROY F WESTON INC / 3162	17-8505-1 / 2A. TYPE 23

3 PRIORITY	4 SOURCE OF FUNDS	5 EPA SITE ID (IF APPLICABLE)	6 COMPLETION DATE	8 REFERENCE INFO
☒ HIGH (1)	☒ CERCLA (1)	36	6/20/85	☒ YES ☐ NO
☐ MEDIUM (2)	☐ 311 (2)	5A. EPA SITE NAME (IF APPLICABLE)	7 OVERTIME APPROVED	☐ ATTACHED
☐ LOW (3)	☐ OTHER (3)	Tri State Mining Area ~~Jasper~~	☒ YES ☐ NO	☒ PICK UP

9 GENERAL TASK DESCRIPTION Review site files and gather any additional information necessary to complete an HRS package

9A. [redacted] ESTIMATED COST $2 700 ESTIMATED HOURS 60

Jasper Co Tri State Mining

10 SPECIFIC ELEMENTS

1 Review files, reports, etc , to prepare an HRS package and supporting documentation

2 Contact other agencies (USGS, SSC, etc.) to provide any additionally needed information

3 Submit all documents (scoresheet, documentation record, documents and bibliography) in time for a Regional QC

If site scores above 28 5

1. Make any changes or additions necessary for HRS package to be submitted for HQ QA, including submittal of EPA Form 2070, a narrative summary and make four copies of package

2. Participate in HQ QA in Region VII, prepare a final document and one copy of final document.

11 INTERIM DEADLINES

Site Occ ... Du...
ID MOD ...
Decal 18
Other
not confident of ...
6-20-85

12. DESIRED REPORT FORM FORMAL REPORT ☐ LETTER REPORT ☐ FORMAL BRIEFING ☐

OTHER (SPECIFY) Final report to be typed on documentation sheets provided

13 COMMENTS See Alice Fuerst for further information on site. See Shelley Brodie for further guidance on HRS package, if needed.

14 AUTHORIZING DPO Dale A Wright (SIGNATURE) 15 DATE 5/22/85

16 RECEIVED BY ☒ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED

Rita Smith (TATL SIGNATURE) 17 DATE 6/05/85

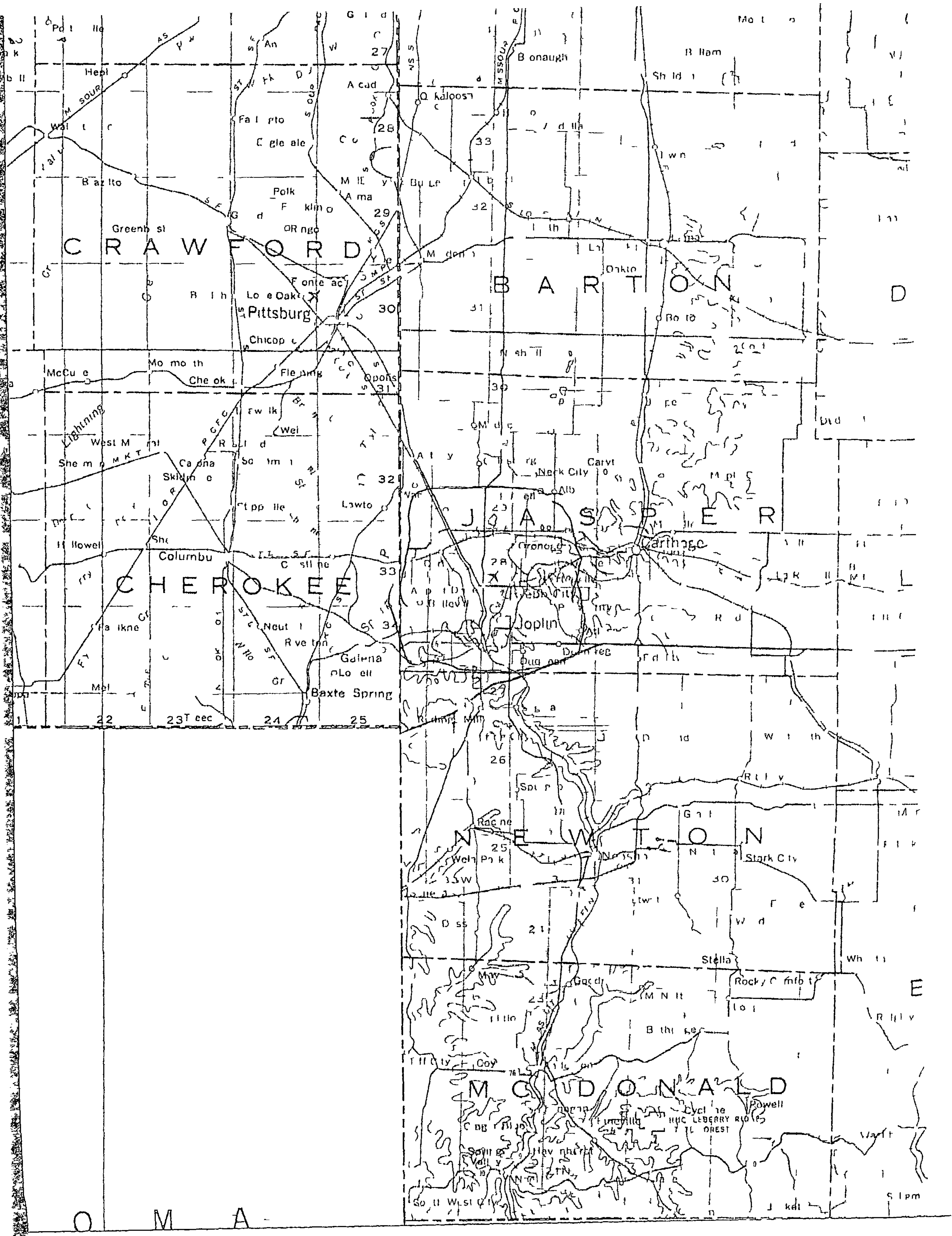
18 DESCRIPTOR 178505158123HRS TRI STATE MIN 736AC 18

Sheet 1 White — TATL Copy
Sheet 2 Green — DPO Copy (Signed by TATL R place Original)
Sheet 3 Canary — NPMO Copy
Sheet 4 Pink — Project Officer Copy
Sheet 5 Blue — Contracting Officer (Washington, D C.)
Sheet 6 Goldenrod — DPO Original (Unsigned by TATL)

40110723

SUPERFUND RECORDS

REV. 330 10 82


CRAWFORD
CHEROKEE
BARTON
JASPER
NEWTON
MCDONALD
Pittsburg
Joplin
Carthage
Columbu
Galena
Baxte Spring
Greenb st
Polk
Stella
Powell
Stark C ty
Lightning
West M
McCu e
Chicop
Che ok
Lawto
Racine
Neut l
Sk ld n e
Ca dna
Neck City
Caryt
B onaugh
Carona
Duquesne
Rocky Comfort
Coy
27
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O M A

June 28 1982

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

Zinc
SW Intake at Shoal

INSTRUCTIONS The purpose of these records is to pr
way to prepare an auditable record of the data and doc
apply the Hazard Ranking System to a given facility
sible summarize the information you used to assign the score for each factor (e g , "Waste quantity = 4,230 drums plus 800 cubic yards of sludges") - The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find Include the location of the document and consider appending a copy of the relevant page(s) for ease in review

FACILITY NAME Jasper County Mining District

LOCATION Jasper County, Missouri

GROUND WATER ROUTE

Reference/page

1 OBSERVED RELEASE

Contaminants detected (5 maximum)

#1 37, 38

Zinc

Rationale for attributing the contaminants to the facility

#1 pg 1 - Area developed for mining of lead and zinc
#2 pg 17 - Major ore deposits include sphalerite (zinc sulfide) galena (lead sulfide) and greenockite (cadmium sulfide)
TCR #1 - Background levels of zinc in groundwater to 1000 ug/l

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern

#1 pg 5 Shallow aquifer (0 to 500 feet deep) in Mississpian
#2 pg 17 age cherty limestone

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern

#1 pg 5 - The shallow aquifer may reach the surface in areas, mainly near streams and extend to a depth of 500 feet

Depth from the ground surface to the lowest point of waste disposal/ storage

#2 pg 19 - Mine shafts and pits have depths ranging
24, 30 from surface to a depth greater than 200 feet
TCR #2 - Mine activity may extend to 400 feet

Reference/page

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal)

HRS Manual — 40 inches

Mean annual lake or seasonal evaporation (list months for seasonal)

HRS Manual — 45 inches

Net precipitation (subtract the above figures)

-5

Permeability of Unsaturated Zone -

Soil type in unsaturated zone

#6 pg 2 — Karst topography

Permeability associated with soil type

HRS Manual — $> 10^{-3}$

Physical State

Physical state of substances at time of disposal (or at present time for generated gases)

#1 pg 13, 15 - Solid (rock to powder) - mine tailing piles
#2 pg 20, 23-24 and exposed ores

* * *

Reference/page

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

#1 pg 13,15 - Tailing piles have been left uncovered, unstabilized
#2 pg 20 22-23 with no liner
#4 pg 10
#2 pg 20 - open shafts and pits in area of tailing piles allow leachate and runoff to enter groundwater

Method with highest score

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

#1 pg 34
Cadmium
Lead
Zinc

Compound with highest score

#5
lead
cadmium
zinc

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum)

#2 pg 21,24 - 10 Million short tons of waste products or tailings
#1 pg 13 - 50 9 Million cubic yards of tailings in Center Turkey and Short Creek drainage basins

Basis of estimating and/or computing waste quantity

As per above reference.

* * *

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

TCR #2, #3, #4, #5 Wells in mining area used for consumption by residents not on other public supplies and where supplies are not available and also as supplemental supply for persons on a public system.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply

TCR #1, #10 #1 pg 38 pg 3 latitude 37° 05' 35" longitude 09° 42 51 ' sequence 301 Map location # 204

TCR #4 McColmb well - SE¼ Section 6, T 27 N, R 33 W - Jasper County

Distance to above well or building

Both wells are located in boundaries of study area, west of Joplin

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each

USGS Maps TCR #6 - 89 residences in area not served by public system

TCR #3, #2 #7 #5 - At least 50 wells utilized by private residents for consumption

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1 5 people per acre)

Not Available

Total population served by ground water within a 3-mile radius

89 x 3 8 = 338 persons

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum)

Rationale for attributing the contaminants to the facility
surface waters downstream of water intake have been found to be contaminated However, samples have not been collected directly upstream of the intake, for background.

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

#2 pg 30 Average slope of facility in percent

Quad Map Joplin West — Some tailing piles and open shafts are located in steep terrain with approx 10% slope
Tanyard and Gordon Hollows - Sect 19-20 T27N, R 33W
USGS Quad Map — Slope of = 10 feet drop over 100 feet length = 10%

Name/description of nearest downslope surface water

Carl Junction, Webb City, Joplin East, Joplin West — Shoal Creek (Newton County) for above Hollows
Also similar for Center, Turkey and Short Creeks in Jasper County

Average slope of terrain between facility and above-cited surface water body in percent

Quad Map Joplin West - 10 feet drop to less than 100 Feet distance at Gordon Hollow drainage way which drains approx less than one mile to Shoal Creek

Is the facility located either totally or partially in surface water?

#2 pg 30 - yes - some pits and shafts are submerged

#2 Quad Maps - Some tailing piles lie adjacent drainage ways

#2 pg 30 pit and mine groundwater under artesian pressure and free flowing at times

USGS Quad Maps

Is the facility completely surrounded by areas of higher elevation?

No

HRS Manual

1-Year 24-Hour Rainfall in Inches

3 2 inches

#2 Quad Maps

Distance to Nearest Downslope Surface Water

Carl Junction - Many tailing piles and prospects lie directly adjacent streams - Center Creek

Joplin West - Smaller piles and prospects lie adjacent Shoal Creek, some within 2000 feet

Physical State of Waste

#1 pg 13, 15 - Solid - mine tailing waste piles, unstabilized and exposed ores

#2 pg 20 23-24

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated

#1 pg 13, 15

#2 pg 20-23

Tailing piles uncovered and unstabilized, many lack diversion or containment structures and lie adjacent pits and shafts open to the several hundred feet depth

Method with highest score

Waste pile

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

#1 pg 34 Cadmium
Lead

Compound with highest score

#5 Both - toxicity and persistence = 3

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum)

#2 pg 24 10 Million short tons of waste products/mine tailings
#1 pg 13 - 50 9 Million cubic yards in Center, Turkey Short Creek drainage basins

Basis of estimating and/or computing waste quantity

As per above reference

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance

TCR #8 Public water supply -
Missouri - American Water Co with intake on Shoal Creek supplies City of Joplin and Jasper County RWD #1 at Carl Junction has no alternate source of supply.

Is there tidal influence?

1 No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less

Not Applicable

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less

Not Applicable

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less

TCR #9 Colony of Gray Bats (endangered) is located outside study area in Jasper County These bats will reportedly frequent the study area

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake

TCR #8

Missouri - American Water Company intake on Shoal Creek near McClelland Park in the far NE ¼ Section 28, T 27 N, R 33 W.

pop 7,

pg 10

Computation of land area irrigated by above-cited intake(s) and conversion to population (1 5 people per acre)

Unknown

Total population served

#3 pg 23, 53 City of Joplin and Jasper County RWD #1 at Carl Junction
total population served = 46000

Name/description of nearest of above water bodies

Not Applicable

Quad Map

Joplin West

Distance to above-cited intakes, measured in stream miles

Missouri-America Water Co Intake is located between 1 to 2 miles down gradient (topographically) from mine tailings and underground workings. (and within less than 1000 feet from several non descript prospects = borings, shallow mining efforts)

June 28, 1982

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

INSTRUCTIONS The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility As briefly as possible summarize the information you used to assign the score for each factor (e g , "Waste quantity = 4,230 drums plus 800 cubic yards of sludges") The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find Include the location of the document and consider appending a copy of the relevant page(s) for ease in review

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Net precipitation (subtract the above figures)

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Permeability of Unsaturated Zone

Soil type in unsaturated zone

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Permeability associated with soil type

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* * *

Reference/page 3 CONTAINMENT

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#4 pg 10
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Method with highest score

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

#1 pg 34 Cadmium
Lead
Zinc

Compound with highest score

#5 lead
cadmium
zinc

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum)

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* * *

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Rationale for attributing the contaminants to the facility
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* * *

2 ROUTE CHARACTERISTICS

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#2 pg 20, 23-24

* * *

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Containment

Method(s) of waste or leachate containment evaluated

#1 pg 13, 15

#2 pg 20-23 — Tailing piles uncovered and unstabilized, many lack diversion or containment structures and lie adjacent pits and shafts open to the several hundred feet depth

Method with highest score

Waste pile

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

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lead

Compound with highest score

#5 Both - toxicity and persistence = 3

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* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance

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Missouri - American Water Co with intake on Shoal Creek supplies City of Joplin and Jasper County RWD #1 at Carl Junction has no alternate source of supply.

Is there tidal influence?

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Not Applicable

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less

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pop 7,

pg 10

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BY GMC DATE 7/10/85 DIV _____ SHEET _____ OF _____

CHKD BY _____ DATE _____ DEPT _____ W O NO _____

PROJECT Jasper County Mining District, Missoori HRS

SUBJECT Memo

Memo

To Shelley Brodie

From Glenn M. Curtis

Subject Changes in HRS package submitted June 17, 1985

Please Find enclosed the subject documents These changes were made subsequent to The QA by Steve Chang, Mitre Corp

Also find enclosed maps of the site prepared by The US Bureau of Mines

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

#1 pg 34 Zinc

Compound with highest score

#5 zinc tox - persist = 12

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum)

Basis of estimating and/or computing waste quantity

* * *

4 WASTE CHARACTERISTICS

Toxicity and Persistence

#1 pg 34 Compound(s) evaluated

Zinc

Compound with highest score

#5 Zinc tox persist = 12

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility - excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum)

Basis of estimating and/or computing waste quantity

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance

Ground Wa er Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max Score	Ref (Section)
[1] Observed Release	0 45	1	45	45	3 1
If observed release is given a score of 45 proceed to line [4] If observed release is given a score of 0 proceed to line [2].					
[2] Route Characterstics					3 2
Depth to Aquifer of Concern	0 1 2 (3)	2		6	
Net Precipi ation	0 1 2 (3)	1		3	
Permeability of the Unsaturated Zone	0 1 2 (3)	1		3	
Physical State	0 (1) 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 (3)	1		3	3 3
[4] Waste Character stics					3 4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			20	26	
[5] Targets					3 5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 (12) 16 18 20 24 30 32 35 40	1	12	40	
Total Targets Score			21	49	
[6] If line [1] is 45 multiply [1] x [4] x [5] 45 x 20 x 21 = 18900 If line [1] is 0 multiply [2] x [3] x [4] x [5]				57 330	
[7] Divide line [6] by 57 330 and multiply by 100		S_{gw} =	32 967		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)
1 Observed Release	0 45	1		45	4 1
If observed release is given a value of 45 proceed to line 4 If observed release is given a value of 0 proceed to line 2					
2 Route Characteristics					4 2
Facility Slope and Intervening Terrain	0 1 2 (3)	1	3	3	
1 yr 24-hr Rainfall	0 1 2 (3)	1	3	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 (1) 2 3	1	1	3	
Total Route Characteristics Score		—	13	15	
3 Containment	0 1 2 3	1	3	3	4 3
4 Waste Characteristics					4 4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score		—	20	26	
5 Targets					4 5
Surface Water Use	0 1 2 (3)	3	9	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 (30) 32 35 40	1	30	40	
Total Targets Score			39	55	
6 If line 1 is 45 multiply 1 x 4 x 5 If line 1 is 0 multiply 2 x 3 x 4 x 5	13 = 3 x 20 x 39		30420	64 350	
7 Divide line 6 by 64 350 and multiply by 100		S_{SW} =	47 272		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	32 967	1086 825
Surface Water Route Score (S_{sw})	47 272	2234 71
Air Route Score (S_a)		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3321 54
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		5763
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		3331

FIGURE 10
WORKSHEET FOR COMPUTING S_M

WESTON

BY GMC DATE 7/10/85 DIV _____ SHEET 3 OF 3

CHKD BY _____ DATE _____ DEPT _____ W O NO _____

PROJECT Jasper County Mining District

SUBJECT Bibliography

7 Telephone Communication Records

#1 Jim Barks USGS Rolla, Missouri
6-6-85

#2 Daniel R Stewart, Mining Engineer - local
6-7-85

#3 Bill Rose, Pump Maintenance - local
2-12-85

#4 Ethel Beechwood, local resident
2-20-85
Bob McColmb, local resident
2-22-85

#5 John Geller, Neosho Well Drilling Co
2-19-85

#6 Jasper County Water District No 1, Clerk
6-11-85
Jasper County Water District No 2, John Larsen
6-11-85

#7 Don Miller, Missouri Geological Survey
6-7-85

#8 Carl Morgan, Missouri American Water Co
6-12-85
Bob Casada, Missouri American Water Co
2-4-85

Reference 7 - Telephone Communication Record - cont

#9 Paul Burke US Fish & Wildlife
6-10-85
Rich Clausen, Missouri Dept of Conservation
6-10-85
Jim Wilson, Missouri Dept of Conserv
6-10-85

#10 Jim Barks, U S G S. Rolla
7-10-85

BY GMC DATE 7/10/85 DIV _____ SHEET _____ OF _____

CHKD BY _____ DATE _____ DEPT _____ W O NO _____

PROJECT Jasper County, Missouri, Mine District

SUBJECT TCR # 10

Jim Barks - U S G.S. Rolla 314-341-0827
Water Resources Div

Lead levels in Ground / Mine waters would best be reflected by concentrations in mine water due to influence of lead joints and pipes on well water

Lead
Background levels would approx. be 20 µg/l